

REMARKS/ARGUMENTS

Claims 2, 5, 6, 8-10, 15-18, 20-23, and 30 are presented for examination

The Examiner is thanked for the withdrawal of the §102(b)/ §103(a) rejection of Claims 2-11 over Warocquier Clerout et al. (Int. J. Cosmetic Sc., 1992).

A. Examiners' Suggestions

To hasten prosecution the Examiner strongly suggested that independent product Claim 2 be amended to be a product-by-process claim which incorporates the steps recited in process Claim 15 as well as the limitations of either Claim 7 (dried, unfermented or fermented cocoa beans) or Claim 8 (micronized, non-roasted cocoa beans). The Examiner also suggested that independent process Claim 15 be amended to incorporate the limitations of Claim 2 regarding the particular free and bound phytosterols and tocopherols as well as the limitations of either Claim 8 (micronized, non-roasted cocoa beans) or Claim 9 (non-roasted cocoa beans).

B. Claims

Support for the amended claims may be found in the original claims. Support for new Claims 31 and 32 may be found in Example 1 at page 8, lines 15-16.

As suggested Claims 1, 9, 11-14, and 24-28 have been canceled.

While Applicants do not agree that the cited references anticipate or render obvious the claimed cocoa oil, they are adopting the Examiner's suggestion to amend Claim 2 to recite the process by which the cocoa oil is obtained to amend Claim 15 to recite particular free and bound phytosterols and particular tocopherols. Please note Applicants have deleted 24-methylene cycloartenol because only trace amounts were present in four of the six cocoa oil extracts (see Table 2).

Applicants have not adopted the Examiner's suggestion to include the limitations of Claims 7 or 8 in Claim 2 or Claims 8 or 9 in Claim 15 because the cocoa oil can be successfully solvent-extracted from micronized cocoa beans, roasted cocoa beans, and freeze dried cocoa beans. See Table 2 which shows that the % oil recovery from roasted cocoa hulls was greater (ranging from 2.60% to 10.05%) than from non-roasted cocoa hulls (ranging from 0.61% to 1.03%). See page 8, lines 15-20 which read: "Cocoa seeds with pulp were removed from Theobroma cocoa pods and freeze-dried... The pulp and hulls were manually removed, and the freeze dried hulls were ground to a fine powder...The ground mass was subjected to overnight extraction with redistilled petroleum ether...The solvent was carefully removed...

C. **§102 (b) Rejection of Claims 2, 5, 6, and 9-11**

Claims 2, 5, 6, and 9-11 are rejected as anticipated by El-Saied et al. (Zeitschrift Fuer Ermig, 1981) for the reasons set forth previously.

D. **Applicant's Comments on Examiner's and §102(b) Rejection Over El-Saied et al.**

It is respectfully submitted that Claims 2, 5, 6, and 10-11 are not anticipated by El-Saied et al. who teach that cocoa butter and cocoa shell fat are "almost identical". See the Summary on p. 150 which reads:

[T]he physical and chemical constants of cocoa shell fat (a by-product resulted [sic] during the production of cocoa butter at chocolate factories) were almost identical with those of cocoa butter obtained from the same cocoa beans except for their high acid value. ...The sterols were determined quantitatively, and it was found that the predominant sterol in cocoa butter and shell fat was β -sitosterol. Cocoa butter contained higher values of stigmasterol than that of shell fat, which contained increasing values of campsterol, low values of cholesterol were found in both samples. Stability of cocoa butter and shell fat towards oxidative rancidity at 100°C was the same (10.5 hrs).

Applicants have demonstrated that cocoa oil and cocoa butter are not almost identical. Cocoa oil has completely different sterol levels than cocoa butter. Hence, cocoa oil and cocoa shell fat can not be the same.

The data reported in Table 3 of the application is set out below.

<u>Sample</u>	<u>mg Sterols/100gm Oil</u>		<u>Percent "Free" Sterols Present in Oil</u>
	<u>Unsaponified</u>	<u>Saponified</u>	
Cocoa Butter	86	205	42%
Roasted Cocoa Hull Oil	4,396	4,674	94%

1. CSFC Analysis

2. Method of Example 1

Given the demonstrated, significant differences in the sterol content of the cocoa oil prepared by the claimed process and cocoa butter (which is almost identical to cocoa shell fat according to El-Saied et al.), this reference cannot anticipate amended cocoa oil Claim 2. Note also that the % of free sterols present in the cocoa oil is more than twice that present in the cocoa butter. Not only does the cocoa oil contain a greater amount of sterols but also 94% of the sterols present in the cocoa oil are free sterols, not bound sterols, whereas only 42% of the sterols present in the cocoa butter are free sterols, not bound sterols.

E. § 102(b) Rejection of Claims 2 and 5-11

Claims 2 and 5-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Baskakova et al. (SU 1734748-DWPI Abstract) or by Gavrilenko (Maslo-Zhir. Prom-st., 1977-CAPLUS Abstract) for the reasons of record.

F. Applicants' Comments on §102 (b) Rejection Over Gavrilenko or Baskakova et al

Abstracts

Gavrilenko

It is respectfully submitted that Claims 2, 6-7, and 9-10 which contain limitations regarding the sterol and tocol content of the oil as well as the method by which the cocoa oil is prepared cannot be anticipated by Gavrilenko which is silent regarding the type of sterols, i.e., free or bound, regarding specific phytosterols and tocols, and regarding how the cocoa oil is obtained. All that Gavrilenko teaches is how to refine cocoa oil after it has been extracted from cocoa husks by an undisclosed process (which could be pressing as suggested by the Examiner or solvent extraction).

Baskakova et al.

It is respectfully submitted that Baskakova likewise does not disclose the composition of the cocoa oil or how it is obtained. As was previously pointed out, a reference must be enabling i.e. it must teach one skilled in the art how to obtain the disclosed product, or process. Since there is more than one way to obtain cocoa oil, e.g., by pressing or solvent extraction, this Abstract cannot anticipate the amended claims which require solvent extraction.

A non-enabling reference may qualify as prior art for the purposes of determining obviousness under §103 but it must enable someone to practice the invention in order to anticipate under §102(b). See Symbol Technologies, Inc. v. Opticon, Inc., 935 F.2d 1569, 19 USPQ 2d 1241 (Fed. Cir. 1991).

G. **§103 (a) Rejection of Claims 2, 5 - 11, 15-18, and 20-23**

Claims 2, 5-11, 15-18 and 20-23 are rejected under § 103(a) as obvious over El-Saied et al. (Zeitschrift Fuer Erna., 1981), in view of Mueller (J. Dairy Sci., 1959) and Alander et al. (WO 99/63031), and further in view of Newton (EP 0861600) for the reasons set forth previously. Applicants note that the Examiner is no longer relying on Warocquier Clerout et al. as basis for the rejection.

H. **Applicants' Comments on The §103(a) Rejection**

The Examiner states that Applicants have not addressed the combined teachings of El-Saied et al., Mueller, Alander et al., and Newton. This is not correct.

Applicant's prior response addressed the teachings of the references as a whole. Applicants pointed out that the deficiencies of El Saied et al. are not cured by the teachings of the secondary references. Even if one assumes that cocoa oil and cocoa shell fat are the same, this combination of references does not render the present product-by-process claims or process claims obvious because (i) Mueller does not teach grinding prior to extraction, (ii) Alander et al. solvent extracts the unsaponifiable part of cocoa butter (not cocoa hulls), and (iii) Newton micronizes wet grain or seed (not cocoa beans). Mueller teaches at page 756 that "[f]inely pulverized cocoa shell depleted of fat by petroleum ether extraction was added to butter oil". (emphasis added) Alander et al. extract lipid samples after cocoa butter was alkaline hydrolyzed. In other words, Alander et al. extracted the unsaponifiable part of the cocoa butter, not the cocoa husks. The relevance of Newton's teaching is questionable. The use of a micronizer to dry wetted grain or seed and gelatinize the starch present in the grain or seed does not render obvious pretreating cocoa beans by micronizing to loosen the cocoa hulls.

Even assuming that El-Saied is correct and that the chemical and physical constants of cocoa shell fat and cocoa butter are "almost identical", Applicants have shown that cocoa oil and cocoa butter differ markedly in the levels of unsaponified sterols and saponified sterols. (see Table 3).

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I. Closing

Entry of the amendment is respectfully requested. No new matter is presented. Reconsideration and withdrawal of the §102(b) rejections and §103(a) rejection are respectfully requested.

Respectfully submitted,

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